Journal of Neurosurgery

JANUARY–JUNE 1992

Volume 76, Numbers 1–6

ISSN 0022-3085

Published monthly, by the AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS

Copyright, 1992, by the American Association of Neurological Surgeons

Second-Class postage paid at Baltimore, Maryland, and at additional mailing offices. POSTMASTER: Send address changes to *Journal of Neurosurgery*, Dartmouth Medical School, Hanover, N.H. 03756. Subscribers must notify the *Journal* of missed copies within 3 months of publication date. Printed in the U.S.A. Publication No.: 28140

- *AANS Member Subscriptions:*
  MR. CARL HAUBER
  AANS Executive Director
  22 South Washington Street, Suite 100
  Park Ridge, Illinois 60068
  Telephone: 708 692-9500

Member Rate: U.S. $90; Canada & South America $100; other $115.

- *Non-Member Subscriptions:*
  Subscription Manager
  Williams & Wilkins Company
  428 East Preston Street
  Baltimore, Maryland 21202
  Telephone: 410 528-4255

Annual Non-Member Subscription Rate: U.S. $110; Canada & South America $120; Japan, Australia, & New Zealand $145; other $135. In-training: U.S. $60; Canada & South America $65; Japan, Australia, & New Zealand $80; other $75. Institution: U.S. $135; Canada & South America $145; Japan, Australia, & New Zealand $170; other $160. Single copies: $17 ($22 foreign orders). Checks, money orders, and drafts (in U.S. dollars) payable to *Journal of Neurosurgery*.

- *Advertising:*
  MR. CHARLES HIRSCH
  Advertising Production Manager
  Williams & Wilkins Company
  428 East Preston Street
  Baltimore, Maryland 21202
  Telephone: 410 528-4283

Editor
THORALF M. SUNDT, JR.
Journal of Neurosurgery
Mayo Clinic
201 First Avenue S.W., Suite 260
Rochester, Minnesota 55905
Telephone: 507 284-1441

Editorial Office
JEAN M. C. LAWE, *Managing Editor*
GAY L. PALAZZO, *Senior Editorial Assistant*
Dartmouth Medical School
Hanover, New Hampshire 03756
Telephone: 603 643-4164
FAX: 603 643-4166

Editorial Board
NICHOLAS T. ZERVAS, *Associate Editor*
JOHN A. JANE, *Associate Editor*
GEORGE A. OJEMANN, Seattle, Washington, *Chairman*
MICHAEL POLLAY, Oklahoma City, Oklahoma
BRYCE K. WEIR, Chicago, Illinois
ROBERT L. GRUBB, St. Louis, Missouri
MARTIN H. WEISS, Los Angeles, California
ROBERT H. WILKINS, Durham, North Carolina
HOWARD M. EISENBERG, Galveston, Texas
JULIAN T. HOFF, Ann Arbor, Michigan
JOHN P. GIRVIN, London, Ontario, Canada
DONALD P. BECKER, Los Angeles, California

Book Review Editor
FREDRIC B. MEYER, Rochester, Minnesota

Advisory Board
PAUL C. BUCY, Tryon, North Carolina
WILLIAM F. COLLINS, New Haven, Connecticut
CHARLES G. DRAKE, London, Ontario, Canada
SIDNEY GOLDRING, St. Louis, Missouri
ROBERT G. GROSSMAN, Houston, Texas
THOMAS W. LANGFITT, Philadelphia, Pennsylvania
JOHN F. MULLAN, Chicago, Illinois
GOSTA NORLÉN, Gothenburg, Sweden
B. RAMAMURTHI, Madras, India
KEIJI SANO, Tokyo, Japan
HENRY G. SCHWARTZ, St. Louis, Missouri
W. EUGENE STERN, Los Angeles, California
H. VERBIEST, Utrecht, The Netherlands
CHARLES B. WILSON, San Francisco, California

New manuscripts should be sent to the Editor, Dr. Thoralf M. Sundt, Jr., Journal of Neurosurgery, Mayo Clinic, 201 First Avenue SW, Suite 260, Rochester, Minnesota 55905, U.S.A.
Instructions to Contributors follow the Index section.

Journal of Neurosurgery

JANUARY–JUNE 1992

Volume 76, Numbers 1–6

ISSN 0022-3085

Published monthly, by the AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS

Copyright, 1992, by the American Association of Neurological Surgeons

Second-Class postage paid at Baltimore, Maryland, and at additional mailing offices. POSTMASTER: Send address changes to *Journal of Neurosurgery*, Dartmouth Medical School, Hanover, N.H. 03756. Subscribers must notify the *Journal* of missed copies within 3 months of publication date. Printed in the U.S.A. Publication No.: 28140

- *AANS Member Subscriptions:*
  MR. CARL HAUBER
  AANS Executive Director
  22 South Washington Street, Suite 100
  Park Ridge, Illinois 60068
  Telephone: 708 692-9500

Member Rate: U.S. $90; Canada & South America $100; other $115.

- *Non-Member Subscriptions:*
  Subscription Manager
  Williams & Wilkins Company
  428 East Preston Street
  Baltimore, Maryland 21202
  Telephone: 410 528-4255

Annual Non-Member Subscription Rate: U.S. $110; Canada & South America $120; Japan, Australia, & New Zealand $145; other $135. In-training: U.S. $60; Canada & South America $65; Japan, Australia, & New Zealand $80; other $75. Institution: U.S. $135; Canada & South America $145; Japan, Australia, & New Zealand $170; other $160. Single copies: $17 ($22 foreign orders). Checks, money orders, and drafts (in U.S. dollars) payable to *Journal of Neurosurgery*.

- *Advertising:*
  MR. CHARLES HIRSCH
  Advertising Production Manager
  Williams & Wilkins Company
  428 East Preston Street
  Baltimore, Maryland 21202
  Telephone: 410 528-4283

Editor
THORALF M. SUNDT, JR.
Journal of Neurosurgery
Mayo Clinic
201 First Avenue S.W., Suite 260
Rochester, Minnesota 55905
Telephone: 507 284-1441

Editorial Office
JEAN M. C. LAWE, *Managing Editor*
GAY L. PALAZZO, *Senior Editorial Assistant*
Dartmouth Medical School
Hanover, New Hampshire 03756
Telephone: 603 643-4164
FAX: 603 643-4166

Editorial Board
NICHOLAS T. ZERVAS, *Associate Editor*
JOHN A. JANE, *Associate Editor*
GEORGE A. OJEMANN, Seattle, Washington, *Chairman*
MICHAEL POLLAY, Oklahoma City, Oklahoma
BRYCE K. WEIR, Chicago, Illinois
ROBERT L. GRUBB, St. Louis, Missouri
MARTIN H. WEISS, Los Angeles, California
ROBERT H. WILKINS, Durham, North Carolina
HOWARD M. EISENBERG, Galveston, Texas
JULIAN T. HOFF, Ann Arbor, Michigan
JOHN P. GIRVIN, London, Ontario, Canada
DONALD P. BECKER, Los Angeles, California

Book Review Editor
FREDRIC B. MEYER, Rochester, Minnesota

Advisory Board
PAUL C. BUCY, Tryon, North Carolina
WILLIAM F. COLLINS, New Haven, Connecticut
CHARLES G. DRAKE, London, Ontario, Canada
SIDNEY GOLDRING, St. Louis, Missouri
ROBERT G. GROSSMAN, Houston, Texas
THOMAS W. LANGFITT, Philadelphia, Pennsylvania
JOHN F. MULLAN, Chicago, Illinois
GOSTA NORLÉN, Gothenburg, Sweden
B. RAMAMURTHI, Madras, India
KEIJI SANO, Tokyo, Japan
HENRY G. SCHWARTZ, St. Louis, Missouri
W. EUGENE STERN, Los Angeles, California
H. VERBIEST, Utrecht, The Netherlands
CHARLES B. WILSON, San Francisco, California

New manuscripts should be sent to the Editor, Dr. Thoralf M. Sundt, Jr., Journal of Neurosurgery, Mayo Clinic, 201 First Avenue SW, Suite 260, Rochester, Minnesota 55905, U.S.A.
Instructions to Contributors follow the Index section.

Journal of Neurosurgery

January 1992, Volume 76, Number 1

REVIEW ARTICLES:

Immunotoxins and central nervous system neoplasia. WALTER A. HALL and ØYSTEIN FODSTAD 1

The neuroprotective pharmacology of methylprednisolone. EDWARD D. HALL 13

CLINICAL ARTICLES:

Methylprednisolone or naloxone treatment after acute spinal cord injury: 1-year follow-up data. Results of the second National Acute Spinal Cord Injury Study. MICHAEL B. BRACKEN, MARY JO SHEPARD, WILLIAM F. COLLINS, JR., THEODORE R. HOLFORD, DAVID S. BASKIN, HOWARD M. EISENBERG, EUGENE FLAMM, LINDA LEO-SUMMERS, JOSEPH C. MAROON, LAWRENCE F. MARSHALL, PHANOR L. PEROT, JR., JOSEPH PIEPMEIER, VOLKER K. H. SONNTAG, FRANKLIN C. WAGNER, JR., JAMES L. WILBERGER, H. RICHARD WINN, and WISE YOUNG 23

Central neurocytoma: histopathological variants and therapeutic approaches. M. GAZI YAŞARGIL, KLAUS VON AMMON, ANDREAS VON DEIMLING, ANTON VALAVANIS, WERNER WICHMANN, and OTMAR D. WIESTLER 32

Cavernous angiomas of the central nervous system in children. R. MICHAEL SCOTT, PATRICK BARNES, WILLIAM KUPSKY, and LESTER S. ADELMAN 38

Aggressive surgical management of craniopharyngiomas in children. HAROLD J. HOFFMAN, MARCIA DE SILVA, ROBIN P. HUMPHREYS, JAMES M. DRAKE, MARY LOU SMITH, and SUSAN I. BLASER 47

Leksell's posteroventral pallidotomy in the treatment of Parkinson's disease. LAURI V. LAITINEN, A. TOMMY BERGENHEIM, and MARWAN I. HARIZ 53

Angiographic frequency of saccular intracranial aneurysms in patients with spontaneous cervical artery dissection. WOUTER I. SCHIEVINK, BAHRAM MOKRI, and DAVID G. PIEPGRAS 62

Significance of positive Queckenstedt test in patients with syringomyelia associated with Arnold-Chiari malformations. SHIGEKUNI TACHIBANA, HIDEO IIDA, and KENZOH YADA 67

Chemical monitoring of neurosurgical intensive care patients using intracerebral microdialysis. LENNART PERSSON and LARS HILLERED 72

LABORATORY INVESTIGATIONS:

Cytoskeletal and extracellular matrix proteins in cerebral arteries following subarachnoid hemorrhage in monkeys. R. LOCH MACDONALD, BRYCE K. A. WEIR, JAMES D. YOUNG, and MICHAEL G. A. GRACE 81

Intravenous fluid tonicity: effect on intracranial pressure, cerebral blood flow, and cerebral oxygen delivery in focal brain injury. STEVEN R. SHACKFORD, JING ZHUANG, and JOSEPH SCHMOKER 91

Endothelin-1 of canine basilar artery in vasospasm. IKUYA YAMAURA, EIICHI TANI, YUKIO MAEDA, NOBUTAKA MINAMI, and HIDEKI SHINDO 99

Efficacy of LY233053, a competitive glutamate antagonist, in experimental central nervous system ischemia. KENNETH P. MADDEN, WAYNE M. CLARK, ABHA KOCHHAR, and JUSTIN A. ZIVIN 106

Effects of inhibitors of protein kinase C and calpain in experimental delayed cerebral vasospasm. NOBUTAKA MINAMI, EIICHI TANI, YUKIO MAEDA, IKUYA YAMAURA, and MASAHIRO FUKAMI 111

Central and peripheral biogenic amine effects of brain missile wounding and increased intracranial pressure. JOSEPH S. SOBLOSKY, N. LYNN ROGERS, JEFFERY A. ADAMS, J. BRYAN FARRELL, JUNE F. DAVIDSON, and MICHAEL E. CAREY .. 119

Autoradiographic analysis of ^{3}H-MK-801 (dizocilpine) *in vivo* uptake and *in vitro* binding after focal cerebral ischemia in the rat. MICHAEL C. WALLACE, GRAHAM M. TEASDALE, and JAMES MCCULLOCH 127

CASE REPORTS AND TECHNICAL NOTES:

Iatrogenic arteriovenous fistula presenting as a recurrent subdural hematoma. Case report. CONRAD T. E. PAPPAS, JOSEPH M. ZABRAMSKI, and ANDREW G. SHETTER 134

Remote congenital cerebral arteriovenous fistulae associated with aortic coarctation. Case report. FRANCIS H. TOMLINSON, DAVID G. PIEPGRAS, DOUGLAS A. NICHOLS, DANIEL A. RÜFENACHT, and SUE C. KASTE 137

Fibroma of the meninges in a child: immunohistological and ultrastructural study. Case report. MIGUEL REYES-MUGICA, PAULINE CHOU, FRANK GONZALEZ-CRUSSI, and TADANORI TOMITA 143

Metastatic choriocarcinoma with neoplastic aneurysms cured by aneurysm resection and chemotherapy. Case report. TAKASHI FUJIWARA, SHOGO MINO, SEIGO NAGAO, and TAKASHI OHMOTO 148

Relief of akinetic mutism from obstructive hydrocephalus using bromocriptine and ephedrine. Case report. BRITT ANDERSON 152

Instrumentation for microsurgical osseous dissection. Technical note. L. PHILIP CARTER 156

Anterior cervical vertebrectomy and interbody fusion. Technical note. DEEPAK AWASTHI and RAND M. VOORHIES 159

BOOK REVIEWS 164

NEUROSURGICAL FORUM: **Letters to the editor** 168

NOTICES 176

Journal of Neurosurgery

February 1992, Volume 76, Number 2

CLINICAL ARTICLES:

Selection bias, survival, and brachytherapy for glioma. RANDALL C. FLORELL, DAVID R. MACDONALD, WILLIAM D. IRISH, MARK BERNSTEIN, STEVEN A. LEIBEL, PHILIP H. GUTIN, and J. GREGORY CAIRNCROSS 179

A 1- to 4-year follow-up review of treatment of sciatica using chemonucleolysis or laminectomy. MANUCHER J. JAVID 184

Nerve transfer in brachial plexus traction injuries. MIROSLAV SAMARDZIC, DANICA GRUJICIC, and VASO ANTUNOVIC .. 191

The extended frontal approach to tumors of the anterior, middle, and posterior skull base. LALIGAM N. SEKHAR, ANIL NANDA, CHANDRA N. SEN, CARL N. SNYDERMAN, and IVO P. JANECKA 198

Effect of head elevation on intracranial pressure, cerebral perfusion pressure, and cerebral blood flow in head-injured patients. ZEEV FELDMAN, MALCOLM J. KANTER, CLAUDIA S. ROBERTSON, CHARLES F. CONTANT, CHRISTOPHER HAYES, MICHAEL A. SHEINBERG, CYNTHIA A. VILLAREAL, RAJ K. NARAYAN, and ROBERT G. GROSSMAN 207

Continuous monitoring of jugular venous oxygen saturation in head-injured patients. MICHAEL SHEINBERG, MALCOLM J. KANTER, CLAUDIA S. ROBERTSON, CHARLES F. CONTANT, RAJ K. NARAYAN, and ROBERT G. GROSSMAN 212

Prognostic significance of magnetic resonance imaging in the acute phase of cervical spine injury. DALE M. SCHAEFER, ADAM E. FLANDERS, JEWELL L. OSTERHOLM, and BRUCE E. NORTHRUP 218

Giant interhemispheric cysts associated with agenesis of the corpus callosum. KOREAKI MORI 224

Lobar intracerebral hemorrhage. A clinical, radiographic, and pathological study of 29 consecutive operated cases with negative angiography. SUSUMU WAKAI, NAHOMI KUMAKURA, and MASAKATSU NAGAI 231

An analysis of the venous drainage system as a factor in hemorrhage from arteriovenous malformations. YOSHIO MIYASAKA, KENZOH YADA, TAKASHI OHWADA, TAKAO KITAHARA, AKIRA KURATA, and KATSUMI IRIKURA 239

LABORATORY INVESTIGATIONS:

Changes in major phospholipids of mitochondria during postischemic reperfusion in rat brain. ICHIRO NAKAHARA, HARUHIKO KIKUCHI, WARO TAKI, SYOGO NISHI, MAKOTO KITO, YASUHIRO YONEKAWA, YASUNOBU GOTO, and NOBUYOSHI OGATA 244

***In vitro* analysis of the proliferative potential of T cells from patients with brain tumor: glioma-associated immunosuppression unrelated to intrinsic cellular defect.** DANIEL W. MCVICAR, DONNA F. DAVIS, and RANDALL E. MERCHANT 251

***In vivo* magnetic resonance imaging of fetal cat neural tissue transplants in the adult cat spinal cord.** EDWARD D. WIRTH III, DANIEL P. THEELE, THOMAS H. MARECI, DOUGLAS K. ANDERSON, STACEY A. BROWN, and PAUL J. REIER .. 261

Regeneration of calvarial defects by a composite of bioerodible polyorthoester and demineralized bone in rats. EIRIK SOLHEIM, ELSE M. PINHOLT, GISLE BANG, and EINAR SUDMANN 275

Evoked potentials from direct cerebellar stimulation for monitoring of the rodent spinal cord. R. JOHN HURLBERT, CHARLES H. TATOR, MICHAEL G. FEHLINGS, GREG NIZNIK, and R. DEAN LINDEN 280

CASE REPORTS AND TECHNICAL NOTE:

Tension pneumocephalus associated with rupture of a middle fossa encephalocele. Case report. MONT J. CARTWRIGHT and MARK B. EISENBERG 292

Stenosis of the axis and cervical myelopathy. Case report. SHANKAR G. PRAKASH, MATHEW J. CHANDY, and JACOB ABRAHAM 296

Multilevel anterior cervical fusion using skull bone grafts. Case report. TOKUTARO TANAKA, TOSHIAKI NINCHOJI, KENICHI UEMURA, HIROSHI RYU, MASASHI SUGIURA, HARUYUKI OHISHI, MAMORU TOMITA, SEIYA TAKEHARA, and TAKAMICHI YAMAMOTO 298

Skull base amyloidoma. Case report. FARUK ÜNAL, KEMAL HEPGÜL, ÇIÇEK BAYINDIR, TURGAY BİLGE, MURAT İMER, and İNAN TURANTAN 303

Spinal subdural abscess. Case report. RONALD H. BARTELS, T. ROB DE JONG, and J. ANDRÉ GROTENHUIS 307

Lipoma involving the skull. Case report. MASAYUKI TOMABECHI, KAZUHIRO SAKO, GO DAITA, and YUKICHI YONEMASU 312

Intracerebral penetration of infrared light. Technical note. PATRICK W. MCCORMICK, MELVILLE STEWART, GARY LEWIS, MANUEL DUJOVNY, and JAMES I. AUSMAN 315

HISTORICAL VIGNETTE: **Percivall Pott: An 18th century neurosurgeon.** EUGENE S. FLAMM 319

BOOK REVIEWS 327

NEUROSURGICAL FORUM:

Neurosurgical liability: The expert witness. DAVID A. HERZ 334

Letters to the editor 336

NOTICES 344

SCIENTIFIC PROGRAM: **Annual Meeting of the American Association of Neurological Surgeons, April 11–16, 1992**

Program Summary 346

Abstracts of Oral Presentations 370A

Journal of Neurosurgery

March 1992, Volume 76, Number 3

CLINICAL ARTICLES:

Long-term results after lateral canthal advancement for unilateral coronal synostosis. HELIO R. MACHADO and HAROLD J. HOFFMAN 401

Editorial Comment. JOHN A. PERSING 406

Three-dimensional computerized tomography angiography in the diagnosis of cerebrovascular disease. ROBERT E. HARBAUGH, DANIEL S. SCHLUSSELBERG, ROBERT JEFFERY, SHAWN HAYDEN, LAURENCE D. CROMWELL, and DANIEL PLUTA 408

The relationship of blood flow velocity fluctuations to intracranial pressure B waves. DAVID W. NEWELL, RUNE AASLID, RENATE STOOSS, and HANS J. REULEN 415

The relationship of ventricular drainage to aneurysmal rebleeding. LAURA PARÉ, RALPH DELFINO, and RICHARD LEBLANC 422

Oligodendrogliomas: the Mayo Clinic experience. EDWARD G. SHAW, BERND W. SCHEITHAUER, JUDITH R. O'FALLON, HENRY D. TAZELAAR, and DUDLEY H. DAVIS 428

Early seizures after mild closed head injury. SHIH-TSENG LEE and TAI-NGAR LUI 435

Surgical stabilization of cervical spinal fractures using methyl methacrylate. Technical considerations and long-term results in 52 patients. THOMAS A. DUFF, AGHA KHAN, and JOSEPH E. CORBETT 440

Stereotactic radiosurgical treatment of brain metastases. JOHN R. ADLER, RICHARD S. COX, IRVING KAPLAN, and DAVID P. MARTIN 444

Diffuse brain swelling in severely head-injured children. A report from the NIH Traumatic Coma Data Bank. E. FRANCOIS ALDRICH, HOWARD M. EISENBERG, CHRISTY SAYDJARI, THOMAS G. LUERSSEN, MARY A. FOULKES, JOHN A. JANE, LAWRENCE F. MARSHALL, ANTHONY MARMAROU, and HAROLD F. YOUNG 450

Aneurysms arising from the proximal (A_1) segment of the anterior cerebral artery. A study of 38 cases. MICHIYASU SUZUKI, TAKEHIDE ONUMA, YOSHIHARU SAKURAI, KAZUO MIZOI, AKIRA OGAWA, and TAKASHI YOSHIMOTO 455

LABORATORY INVESTIGATIONS:

Intraforaminal repair of plexus spinal nerves by a posterior approach: an experimental study. DAVID G. KLINE, THOMAS R. DONNER, LEO HAPPEL, BARBARA SMITH, and HANS P. RICHTER 459

Transient glucose hypermetabolism after acute subdural hematoma in the rat. YASUHIRO KURODA, FIONA M. INGLIS, JIMMY D. MILLER, JAMES MCCULLOCH, DAVID I. GRAHAM, and ROSS BULLOCK 471

Perfusion pressure breakthrough threshold of cerebral autoregulation in the chronically ischemic brain: an experimental study in cats. TOSHISUKE SAKAKI, SHOZABURO TSUJIMOTO, MASAYA NISHITANI, YASUHITO ISHIDA, and TETSUYA MORIMOTO 478

Effect of mannitol on local cerebral blood flow after temporary complete cerebral ischemia in rats. REIZO SHIRANE and PHILIP R. WEINSTEIN 486

Time course of the impairment of cerebral autoregulation during chronic cerebral vasospasm after subarachnoid hemorrhage in primates. YUJI HANDA, MINORU HAYASHI, HIROAKI TAKEUCHI, TETSUYA KUBOTA, HIDENORI KOBAYASHI, and HIROKAZU KAWANO 493

Development of multidrug resistance in a primitive neuroectodermal tumor cell line. DAVID M. TISHLER and COREY RAFFEL 502

Multidrug resistance gene expression in pediatric primitive neuroectodermal tumors of the central nervous system. DAVID M. TISHLER, KENNETH I. WEINBERG, LEONARD S. SENDER, JAN A. NOLTA, and COREY RAFFEL 507

Treatment of murine primary brain tumors with systemic interleukin-2 and tumor-infiltrating lymphocytes. STEPHEN C. SARIS, PAUL SPIESS, DANIEL M. LIEBERMAN, SHAN LIN, STUART WALBRIDGE, and EDWARD H. OLDFIELD 513

CASE REPORTS AND TECHNICAL NOTES:

Resolution of petrous internal carotid artery stenosis after transluminal angioplasty. Case report. ROBERT C. ROSTOMILY, MARC R. MAYBERG, JOSEPH M. ESKRIDGE, ROBERT GOODKIN, and H. RICHARD WINN 520

Direct approach to a traumatic giant internal carotid artery aneurysm associated with a carotid-cavernous fistula. Case report. YOSHIYUKI MASANA and MAMORU TANEDA 524

Intramedullary epidermoid cysts of the spinal cord. Case report. ALAIN ROUX, CLAUDE MERCIER, ALBERT LARBRISSEAU, LOUIS-JACQUES DUBE, CÉLINE DUPUIS, and RAQUEL DEL CARPIO 528

Ligamentum flavum hematoma. Report of two cases. THOMAS A. SWEASEY, HANS C. COESTER, HARISH RAWAL, MILA BLAIVAS, and JOHN E. MCGILLICUDDY 534

Ultrasound diagnosis of an intraneural ganglion cyst of the peroneal nerve. Case report. FRANS S. S. LEIJTEN, WILLEM-FRANS ARTS, and JULIEN B. C. M. PUYLAERT 538

Cerebral protection during aneurysm surgery with isoflurane anesthesia. Technical note. FREDRIC B. MEYER and DONALD A. MUZZI 541

A portable traction device for cervical fractures. Technical note. RAY H. KINNAIRD and RICHARD K. JELSMA 544

End-to-side anastomosis of small vessels using an Nd:YAG laser with a hemispherical contact probe. Technical note. CORNELIS A. F. TULLEKEN, ANDRIES VAN DIEREN, RUUD M. VERDAASDONK, and WIM BERENDSEN 546

HISTORICAL VIGNETTE: **Two examples of ancient skull surgery.** ELSIE H. FROESCHNER 550

BOOK REVIEWS 553

NEUROSURGICAL FORUM: **Letters to the editor** 557

NOTICES 564

Journal of Neurosurgery

April 1992, Volume 76, Number 4

GUEST EDITORIAL: **Skull-base surgery: a perspective.** ROBERT G. OJEMANN 569

CLINICAL ARTICLES:

Effect of AT877 on cerebral vasospasm after aneurysmal subarachnoid hemorrhage. Results of a prospective placebo-controlled double-blind trial. MASATO SHIBUYA, YOSHIO SUZUKI, KENICHIRO SUGITA, ISAMU SAITO, TOMIO SASAKI, KINTOMO TAKAKURA, IZUMI NAGATA, HARUHIKO KIKUCHI, TOSHIKI TAKEMAE, HIROYOSHI HIDAKA, and MITSUYOSHI NAKASHIMA 571

Temporal bone neoplasms: a report on 20 surgically treated cases. LALIGAM N. SEKHAR, SHLOMO POMERANZ, IVO P. JANECKA, BARRY HIRSCH, and SAI RAMASASTRY 578

The combined supra- and infratentorial approach for lesions of the petrous and clival regions: experience with 46 cases. ROBERT F. SPETZLER, C. PHILLIP DASPIT, and CONRAD T. E. PAPPAS 588

Etiological evaluation of dural arteriovenous malformations of the lateral and sigmoid sinuses based on histopathological examinations. MICHIHARU NISHIJIMA, AKIRA TAKAKU, SHUNRO ENDO, NAOYA KUWAYAMA, FUMITOMO KOIZUMI, HIDEJI SATO, and KENJI OWADA 600

Histopathological follow-up study of 66 cerebral arteriovenous malformations after therapeutic embolization with polyvinyl alcohol. ISABELLE M. GERMANO, RICHARD L. DAVIS, CHARLES B. WILSON, and GRANT B. HIESHIMA 607

Cranial and sacral dural arteriovenous fistulas as a cause of myelopathy. MICHAEL D. PARTINGTON, DANIEL A. RÜFENACHT, W. RICHARD MARSH, and DAVID G. PIEPGRAS 615

Severe limitation in mouth opening following transtemporal neurosurgical procedures: diagnosis, treatment, and prevention. D. W. NITZAN, B. AZAZ, and S. CONSTANTINI 623

Rapid polymerizing fibrin glue from autologous or single-donor blood: preparation and indications. MICHAEL T. STECHISON 626

Intraoperative anatomical studies in patients with aneurysms of the anterior communicating artery complex. EDGAR NATHAL, NOBUYUKI YASUI, TAKESHI SAMPEI, and AKIFUMI SUZUKI 629

LABORATORY INVESTIGATIONS:

Direct evidence for a key role of protein kinase C in the development of vasospasm after subarachnoid hemorrhage. SHIGERU NISHIZAWA, NOBUKAZU NEZU, and KENICHI UEMURA 635

The intracerebral distribution of BCNU delivered by surgically implanted biodegradable polymers. STUART A. GROSSMAN, CARLA REINHARD, O. MICHAEL COLVIN, MARK CHASIN, ROBERT BRUNDRETT, RAFAEL J. TAMARGO, and HENRY BREM 640

Action of phospholipases A_2 and C on free fatty acid release during complete ischemia in rat neocortex. Effect of phospholipase C inhibitor and N-methyl-D-aspartate antagonist. ATSUSHI UMEMURA, HIDEO MABE, HAJIME NAGAI, and FUMIHIKO SUGINO 648

The effect of tumor necrosis factor-α on human malignant glial cells. ROLANDO F. DEL MAESTRO, MONICA LOPEZ-TORRES, WARREN B. MCDONALD, ERIC C. STROUDE, and INDRASEN S. VAITHILINGAM 652

Human antiglioma monoclonal antibodies from patients with astrocytic tumors. MICHAEL D. DAN, CHRISTOPHER M. SCHLACHTA, JOHN GUY, RICHARD G. MCKENZIE, DELBERT R. DORSCHEID, VICTOR A. SANDOR, JEAN-GUY VILLEMURE, and GERALD B. PRICE 660

The effect of hemoglobin on vasodilatory effect of calcium antagonists in the isolated rabbit basilar artery. MASAHIKO TOSHIMA, NEAL F. KASSELL, TOMIO SASAKI, YUICHIRO TANAKA, and TAKAO MACHI 670

Laser-induced fluorescence: experimental intraoperative delineation of tumor resection margins. WAI S. POON, KEVIN T. SCHOMACKER, THOMAS F. DEUTSCH, and ROBERT L. MARTUZA 679

The effects of lumbar sympathectomy on regional spinal cord blood flow in rats during acute hemorrhagic hypotension. ATSUSHI IWAI and WILLIAM W. MONAFO 687

CASE REPORTS:

Primary intracranial Hodgkin's lymphoma without dural attachment. Case report. W. CRAIG CLARK, THOMAS CALLIHAN, LEE SCHWARTZBERG, and JAMES FONTANESI 692

Malignant lymphoma of the central nervous system presenting with central neurogenic hyperventilation. Case report. YASUSHI SHIBATA, KOTOO MEGURO, KIYOSHI NARUSHIMA, FUMIHO SHIBUYA, MIKIO DOI, and YOICHI KIKUCHI 696

Tortuous peripheral arteries: a cause of focal neuropathy. Case report. RICARDO SEGAL, USHA MACHIRAJU, and MARK LARKINS 701

Meningeal melanocytoma: magnetic resonance imaging characteristics and pathological features. Case report. YUJI UEMATSU, SYUUYA YUKAWA, HIDEKI YOKOTE, TORU ITAKURA, SEIJI HAYASHI, and NORIHIKO KOMAI 705

Preserved spinal dorsal horn potentials in a brain-dead patient with Lazarus' sign. Case report. EIICHIROU URASAKI, TOSHIYUKI TOKIMURA, JUN-ICHIROU KUMAI, SHIN-ICHI WADA, and AKIRA YOKOTA 710

Spontaneous intracerebral hematoma from occult carotid-cavernous fistula during pregnancy and puerperium. Case report. TZU-KANG LIN, CHEN-NEN CHANG, and YAU-YAU WAI 714

BOOK REVIEWS 718

NEUROSURGICAL FORUM: **Letters to the editor** 723

NOTICES 727

Journal of Neurosurgery

May 1992, Volume 76, Number 5

CLINICAL ARTICLES:

Overall outcome in aneurysmal subarachnoid hemorrhage. A prospective study from neurosurgical units in Sweden during a 1-year period. HANS SÄVELAND, JAN HILLMAN, LENNART BRANDT, GÖRAN EDNER, KARL-ERIK JAKOBSSON, and GÖRAN ALGERS 729

Hippocampal pathology in patients with intractable seizures and temporal lobe masses. ITZHAK FRIED, JUNG H. KIM, and DENNIS D. SPENCER 735

The treatment of oligodendrogliomas and mixed oligodendroglioma-astrocytomas with PCV chemotherapy. JON GLASS, FRED H. HOCHBERG, MICHAEL L. GRUBER, DAVID N. LOUIS, DAVID SMITH, and BARBARA RATTNER 741

Neuro-ophthalmological function of patients with pineal region tumors approached transtentorially in the semisitting position. JULES M. NAZZARO, WILLIAM T. SHULTS, and EDWARD A. NEUWELT 746

Thromboendarterectomy of the symptomatic occluded internal carotid artery. PATRICK W. MCCORMICK, ROBERT F. SPETZLER, JULIAN E. BAILES, JOSEPH M. ZABRAMSKI, and JAMES L. FREY 752

Intraventricular neurocytoma: clinicopathological analysis of seven cases. DONG GYU KIM, JE G. CHI, SUNG HYE PARK, KEE HYUN CHANG, SUN HO LEE, HEE-WON JUNG, HYUN JIB KIM, BYUNG-KYU CHO, KIL SOO CHOI, and DAE HEE HAN 759

Terson's syndrome: a reversible cause of blindness following subarachnoid hemorrhage. ANDREW M. GARFINKLE, IRENA R. DANYS, DAVID A. NICOLLE, AUSTIN R. T. COLOHAN, and STEVEN BREM 766

A randomized comparison of intra-arterial versus intravenous BCNU, with or without intravenous 5-fluorouracil, for newly diagnosed patients with malignant glioma. WILLIAM R. SHAPIRO, SYLVAN B. GREEN, PETER C. BURGER, ROBERT G. SELKER, JOHN C. VANGILDER, JAMES T. ROBERTSON, JOHN MEALEY, JR., JOSEPH RANSOHOFF, and M. STEPHEN MAHALEY, JR. 772

REVIEW ARTICLE:

Adhesion molecules and malignant gliomas: implications for tumorigenesis. WILLIAM T. COULDWELL, NICOLAS DE TRIBOLET, JACK P. ANTEL, THIERRY GAUTHIER, and MARIA C. KUPPNER 782

LABORATORY INVESTIGATIONS:

Correlation of basic fibroblast growth factor expression levels with the degree of malignancy and vascularity in human gliomas. JUN A. TAKAHASHI, MANABU FUKUMOTO, KOICHI IGARASHI, YOSHIFUMI ODA, HARUHIKO KIKUCHI, and MASAKAZU HATANAKA 792

Effect of the expression of transforming growth factor-β2 in primary human glioblastomas on immunosuppression and loss of immune surveillance. MARIUS MAXWELL, THEOFANIS GALANOPOULOS, JANINE NEVILLE-GOLDEN, and HARRY N. ANTONIADES 799

Biomechanics of sequential posterior lumbar surgical alterations. JOSEPH F. CUSICK, NARAYAN YOGANANDAN, FRANK A. PINTAR, and JOHN M. REINARTZ 805

Reduced cerebral blood flow, oxygen delivery, and electroencephalographic activity after traumatic brain injury and mild hemorrhage in cats. DOUGLAS S. DEWITT, DONALD S. PROUGH, CAROL L. TAYLOR, and JOHN M. WHITLEY 812

Endothelial cell chemotactic factor derived from human glioma cell lines. SHUICHI TAKAKI, JUN-ICHI KURATSU, YOSUKE MIHARA, MASAHARU YAMADA, and YUKITAKA USHIO 822

The effect of chronic subarachnoid hemorrhage on basal endothelium-derived relaxing factor activity in intrathecal cerebral arteries. DAVID H. EDWARDS, JAMES V. BYRNE, and TUDOR M. GRIFFITH 830

***In vitro* efficacy of transferrin-toxin conjugates against glioblastoma multiforme.** WALTER A. HALL, ASLAK GODAL, SIRI JUELL, and ØYSTEIN FODSTAD 838

Suppression of anchorage-independent growth of human glioblastoma cell by major histocompatibility complex class I gene-transfection. NOBUAKI MOMOZAKI, MAMORU OH-UCHIDA, KAZUO TABUCHI, KIYONOBU IKEZAKI, and KATSUJI HORI 845

Interaction of acidic fibroblast growth factor and transforming growth factor-β in normal and transformed glia *in vitro*. TIMOTHY C. RYKEN, VINCENT C. TRAYNELIS, and RAMON LIM 850

Reconstitution of shunted mantle in experimental hydrocephalus. HARUYUKI YAMADA, AKIRA YOKOTA, AKIKO FURUTA, and AKIO HORIE 856

CASE REPORTS AND TECHNICAL NOTES:

Anastomosis of the anterior temporal artery to a secondary trunk of the middle cerebral artery for treatment of a giant M_1 segment aneurysm. Case report. JOSHUA B. BEDERSON and ROBERT F. SPETZLER 863

Intraoperative localization of the central sulcus by cortical somatosensory evoked potentials in brain tumor. Case report. AKIFUMI SUZUKI and NOBUYUKI YASUI 867

Secondary malignant lymphoma of the central nervous system with delayed high uptake on ^{123}I-IMP single-photon emission computerized tomography. Case report. CHIFUMI KITANAKA, TSUNEYOSHI EGUCHI, and TAKESHI KOKUBO 871

Malignant triton tumor of the acoustic nerve. Case report. DAE HEE HAN, DONG GYU KIM, JE G. CHI, SUNG HYE PARK, HEE-WON JUNG, and YOUNG GYU KIM 874

Transnasal stereotactic biopsy of a clivus tumor. Technical note. JEFFREY V. ROSENFELD, DAVID WALLACE, GEOFFREY L. KLUG, and ANDREW DANKS 878

A newly designed puncture needle for suction decompression of giant aneurysms. Technical note. KAZUHIKO KYOSHIMA, SHIGEAKI KOBAYASHI, KENJI WAKUI, YOSHIKI ICHINOSE, and HIROSHI OKUDERA 880

HISTORICAL VIGNETTE: **Mr. Jefferson's Rotunda.** RAYMOND C. BICE, JR. 883

BOOK REVIEWS 885

NEUROSURGICAL FORUM: **Letters to the editor** 888

NOTICES 893

Journal of Neurosurgery

June 1992, Volume 76, Number 6

GUEST EDITORIAL: **Vestibular schwannomas.** C. KEITH WHITTAKER and CHARLES M. LUETJE 897

CLINICAL ARTICLES:

Current results of the retrosigmoid approach to acoustic neurinoma. MICHAEL J. EBERSOLD, STEPHEN G. HARNER, CHARLES W. BEATTY, C. MICHEL HARPER, JR., and LYNN M. QUAST 901

Hearing preservation in acoustic neurinoma surgery. GEORGES FISCHER, CATHERINE FISCHER, and JOËL RÉMOND 910

Relationship of perfusion pressure and size to risk of hemorrhage from arteriovenous malformations. ROBERT F. SPETZLER, RONALD W. HARGRAVES, PATRICK W. MCCORMICK, JOSEPH M. ZABRAMSKI, RICHARD A. FLOM, and RICHARD S. ZIMMERMAN 918

The symptomatic and functional outcome of stereotactic thalamotomy for medically intractable essential tremor. MARC S. GOLDMAN, J. ERIC AHLSKOG, and PATRICK J. KELLY 924

Results of a prospective randomized trial for treatment of severely brain-injured patients with hyperbaric oxygen. GAYLAN L. ROCKSWOLD, SANDRA E. FORD, DAVID C. ANDERSON, THOMAS A. BERGMAN, and ROBERT E. SHERMAN .. 929

Reconstruction of the third through sixth cranial nerves during cavernous sinus surgery. LALIGAM N. SEKHAR, GIUSEPPE LANZINO, CHANDRA N. SEN, and SPIROS POMONIS 935

Endocrinological evaluation of ACTH-secreting pituitary microadenomas: their location and α-melanocyte stimulating hormone immunoreactivity. TAKASHI NAGAYA, AKIO KUWAYAMA, HISAO SEO, NOBUHIRO TSUKAMOTO, NOBUO MATSUI, and KENICHIRO SUGITA 944

Neurovascular compression in trigeminal neuralgia: a clinical and anatomical study. PETER J. HAMLYN and THOMAS T. KING 948

Cerebral blood flow and metabolism following superficial temporal artery to superior cerebellar artery bypass for vertebrobasilar occlusive disease. AKIRA OGAWA, MOTONOBU KAMEYAMA, KENJI MURAISHI, TAKASHI YOSHIMOTO, MASATOSHI ITO, and YOSHIHARU SAKURAI 955

The cerebral hemodynamics of normotensive hypovolemia during lower-body negative pressure. COLE A. GILLER, BENJAMIN D. LEVINE, YVES MEYER, JAY C. BUCKEY, LYNDA D. LANE, and D. JOHN BORCHERS 961

Patient-interactive, computer-controlled neurological stimulation system: clinical efficacy in spinal cord stimulator adjustment. RICHARD B. NORTH, KIM FOWLER, DANIEL J. NIGRIN, and RICHARD SZYMANSKI 967

Variations in location of the arteries coursing between the brain stem and the free edge of the tentorium. SAMUIL M. BLINKOV, GABIB A. GABIBOV, and SERGEI V. TANYASHIN 973

Chronic stimulation of the Kölliker-Fuse nucleus region for relief of intractable pain in humans. RONALD F. YOUNG, VOLKER TRONNIER, and PATRICIA C. RINALDI 979

LABORATORY INVESTIGATIONS:

Sensitivity of human glioma and brain cells to natural killer cell lysis. Effects of serum concentration, epidermal growth factor, and time in culture. RENE L. MYERS, RONALD L. WHISLER, RALPH E. STEPHENS, CRAIG A. SPONSELLER, KIMBERLY LIVINGSTON, PAUL M. SPRING, and ALLAN J. YATES 986

High-energy phosphate levels in the cerebral artery during chronic vasospasm after subarachnoid hemorrhage. PHYO KIM, JAMES D. JONES, and THORALF M. SUNDT, JR. 991

Interphase cytogenetics: a new tool for the study of genetic changes in brain tumors. EDO P. J. ARNOLDUS, LAETITIA B. T. WOLTERS, JOAN H. C. VOORMOLEN, SJOERD G. VAN DUINEN, ANTON K. RAAP, MELS VAN DER PLOEG, and A. C. BOUDEWIJN PETERS 997

CASE REPORTS AND TECHNICAL NOTE:

Intra-arterial urokinase for treatment of retrograde thrombosis following resection of an arteriovenous malformation. Case report. ERIC P. SIPOS, JEFFREY R. KIRSCH, HARING J. W. NAUTA, GERARD DEBRUN, JOHN A. ULATOWSKI, and WILLIAM R. BELL 1004

Surgical excision of giant cerebellar hemispheric arteriovenous malformations following preoperative embolization. Report of two cases. KAZUO MIZOI, AKIRA TAKAHASHI, TAKASHI YOSHIMOTO, TAKAYUKI SUGAWARA, and KEIICHI SAITO 1008

Diagnosis and treatment of Ogilvie's syndrome after lumbar spinal surgery. Report of three cases. ROBERT A. FELDMAN and RICHARD C. KARL 1012

Anomalous arrangement of the origins of the anterior choroidal and posterior communicating arteries. Case report. DONALD J. MOYER and EUGENE S. FLAMM 1017

Rupture of previously documented small asymptomatic saccular intracranial aneurysms. Report of three cases. WOUTER I. SCHIEVINK, DAVID G. PIEPGRAS, and FREMONT P. WIRTH 1019

Multiple vertebral hemangiomas with neurological signs. Case report. MICHEL DJINDJIAN, JEAN-PAUL NGUYEN, ANDRÉ GASTON, JEAN-MARC PAVLOVITCH, JACQUES POIRIER, and ISSAM A. AWAD 1025

Apnea testing for the determination of brain death: a modified protocol. Technical note. EDWARD C. BENZEL, JAY P. MASHBURN, STEVEN CONRAD, and DENISE MODLING 1029

HISTORICAL VIGNETTE: **The Krause operations.** HAROLD ROSEGAY 1032

BOOK REVIEWS 1037

NEUROSURGICAL FORUM: **Letters to the editor** 1041

NOTICES 1054

INDEX TO VOLUME 76 1058